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6 November 1961

P-351

MEMORANDUM FOR: THE RECORD

SEE REVERSE FOR DECLASSIFICATION ACTION

SUBJECT

25X1

1. Time and Place of Meeting: The meeting was held on 17-19 October at

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2. Attendance:

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3. Purpose of Visit: To discuss P-213, Acoustics of Materials and P-351, Secure Room Jammer.

4. Discussion:

Informed [] of the oscillation difficulties encountered in the ultrasonic dog units. [] stated that this was due to several things, but mainly because of non-linearity at the high power output. [] stated that the speaker efficiency was very low and they felt that if additional units are required, a special speaker should be made. [] also felt that a circuit redesign would be advantageous.

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[] has completed the three noise generators. [] stated that the Bell Labs circuit became unstable with temperature rise, necessitating a circuit redesign. This required a greater expenditure of funds and time than their proposal called for. [] was asked to supply mounting rings for the speakers. It was felt by the undersigned that repetitive mounting and unmounting of the speakers as proposed by [] would result in damage to them. The speakers can be mounted by using wax, screws, or glue. As the unit stands now, both the acoustic and magnetic radiation circuits are activated simultaneously. [] was asked to see if it was possible to insert a switch so that the unit could be used in three positions, ie, both activated or acoustic only or magnetic only.

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[] has a volume control on each speaker and were informed that this was unnecessary. [] proposes to use number 18 wire to form the magnetic loops. [] was asked to continue to look at different techniques for magnetic radiation propagation.

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[] was informed that the first stage in the special filter was very noisy. [] stated that they had discovered this and had corrected it in the 25 units now under construction. All parts for the 25 units have been received and the units are being assembled for December delivery.

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Work is progressing on the one way ultrasonic communicator. A rough lashup was demonstrated but the intelligibility was poor. did not have the transducer optimized on the receiver end. The transmitter has been completed. It was designed to accept the input from a MC-30 microphone and gives a double sideband modulated carrier, the center frequency being at 29 KC. Transmitter output is 20 watts. Transmitter size is about 6½" x 4" x 3". is now working on the receiver portion of the system. Once completed, the entire system will be evaluated.

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has investigated the reason for the distortion in the dual channel kit. It was discovered that distortion occurred when the amplifier gain was adjusted to hear low level sounds. At such a setting, a loud sound will overload the amplifier and degrade the intelligibility. This condition can be eliminated by putting a transformer in the output stage. SWRI tried this and found that the over-all noise level did not increase to any degree, even where the unit was operated close to external electromagnetic noise sources such as fluorescent fixture and power lines. Additional tests will be made before it is definitely decided to incorporate such a change, since in normal usage, the condition causing distortion is not encountered.

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has done testing on the filters to fully evaluate the performance of the high and low pass filters and notch filters. The test showed that the filter unit is optimized for use with the crystal transducer. Its use with other transducers may not give such outstanding performance.

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was informed that at present, no action had been taken on the ultrasonic detector built for Rome Air Force. As soon as official liaison is established, the Agency's course of action will be determined.

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has completed, tested and calibrated all the instrumentation needed to determine the effects of wind, humidity, and thermal gradients on ultrasonic waves. The entire operation is automated and requires a very short set up time. Measurements can be obtained from ground level to 30 feet. Measurements will be taken throughout the year to give an adequate representation of the four seasons. Attached to this report are photographs of the test setup.

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was queried for additional details on the subsonic biological device. stated that they learned of the idea through an Itek engineer , who saw the device at Bell Labs. This information will be passed on to TSD/RE.

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was informed that their proposals on broad band transducers and acoustics of materials would have to be rewritten. stated they would do so.

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Attachments:
2 photos w/orig.

Distribution:
Orig. - P-213 w/att.
1 - P-351
1 - AWS
1 - Trip Report
1 - Chrono

TSD/APB/AWS:ms (dated 6 November 1961)

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